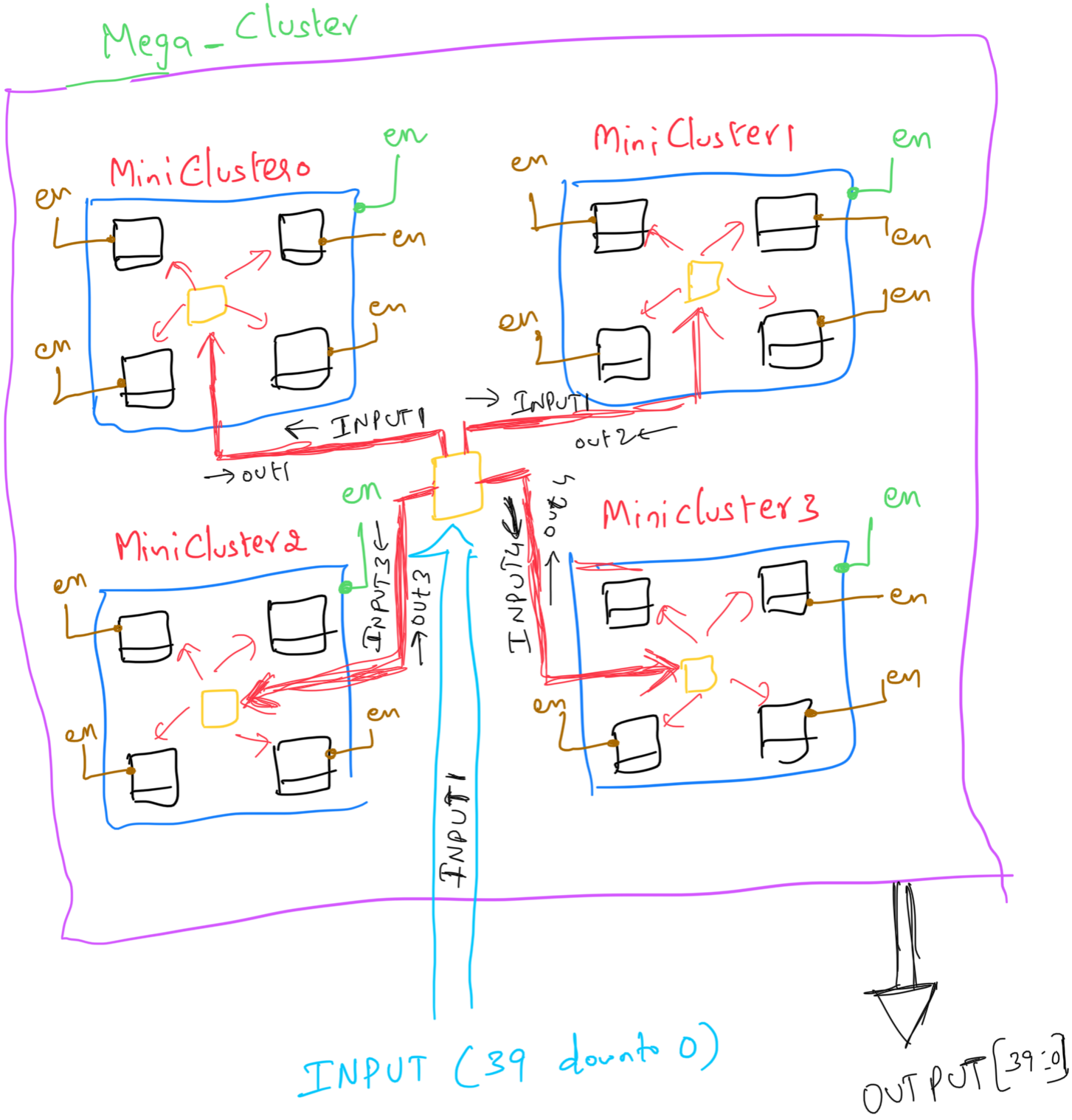

Mega - Cluster
MiniCluster0
MiniCluster1
MiniCluster2
MiniCluster3
en
INPUT1
out1
out2
INPUT3
out3
INPUT4
out4
INPUT (39 down to 0)
OUTPUT [39:0]

INPUT =

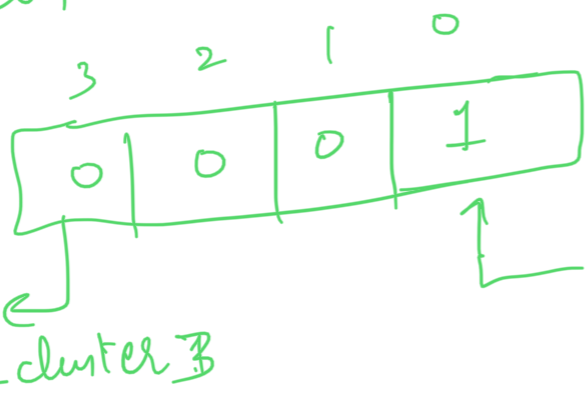
39 to 36	35 to 32	31 to 21	20 to 9	8	7 to 4	3 to 0
Giga_en 4 bits	Mini_en 4 bits	A, B, C i/p 11 bits	Sel 12 bits	reset 1 bit	CU en	Mega_en

→ Giga_en → 4bits used to enable the whole project

→ Mini_en → 4 bits

There 4 bits decides the which

minicluster should be enable (blue colored block)



→ A, B, C ⇒ A (i/p) → 4bits

B (I/p) → 4 bits

C (I/p) → Rotational i/p

→ sel → cu selection i/p's (12 bits)

→ Reset bit → Used to operate the D-flipflops inside the CU's storage inputs (1-bit)

→ Cu en → 4 bits

Cu en → bits used to enable the CU's inside the each cluster.

→ Mega-en → 4 bits.

used to operate the Mega-clusters when possible.

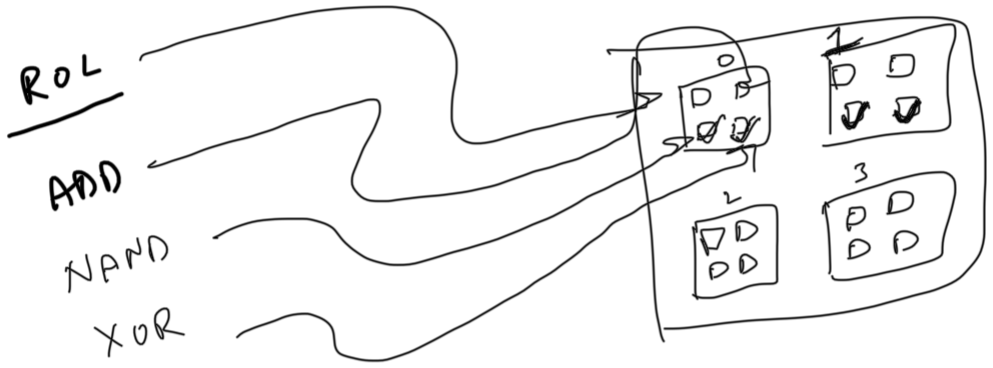
B

B 3

0011

1011

0111



1011
0011
1110

1011
0011
0011
1100
NAND

1011
0011
1000

ROL 0111

AND 1110

NAND 1100

1000

0000/0111 → 07

0000/1110 → 0e

0000/1100 → 0c

0000/1000 → 08

e7 NAND → 09

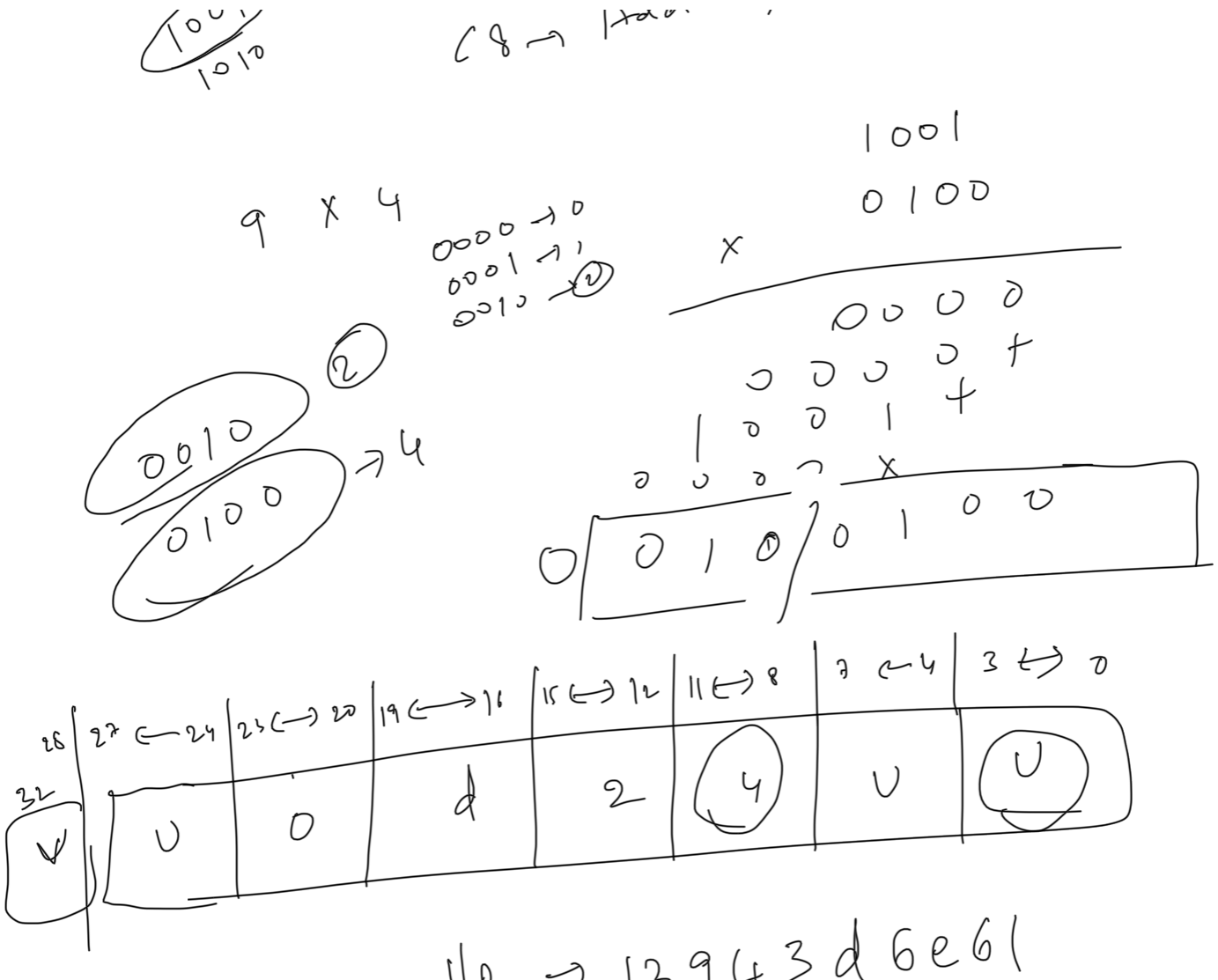
e7 Add → 15

c8 NAND → 07

Add → 14

1000

1100
1000
10100
0001 0100
1 4



1001
1010

C8 → Hdd

9 x 4

0000 → 0
0001 → 1
0010 → 2

2

0010
0100 → 4

1001
0100
x
0000
0000 +
1001 +
0000 x
0 | 0 1 0 | 0 1 0 0

28	27 ← 24	23 ↔ 20	19 ↔ 16	15 ↔ 12	11 ↔ 8	7 ← 4	3 ↔ 0
32 V	U	0	d	2	4	U	U

i/p → 13943d6e61

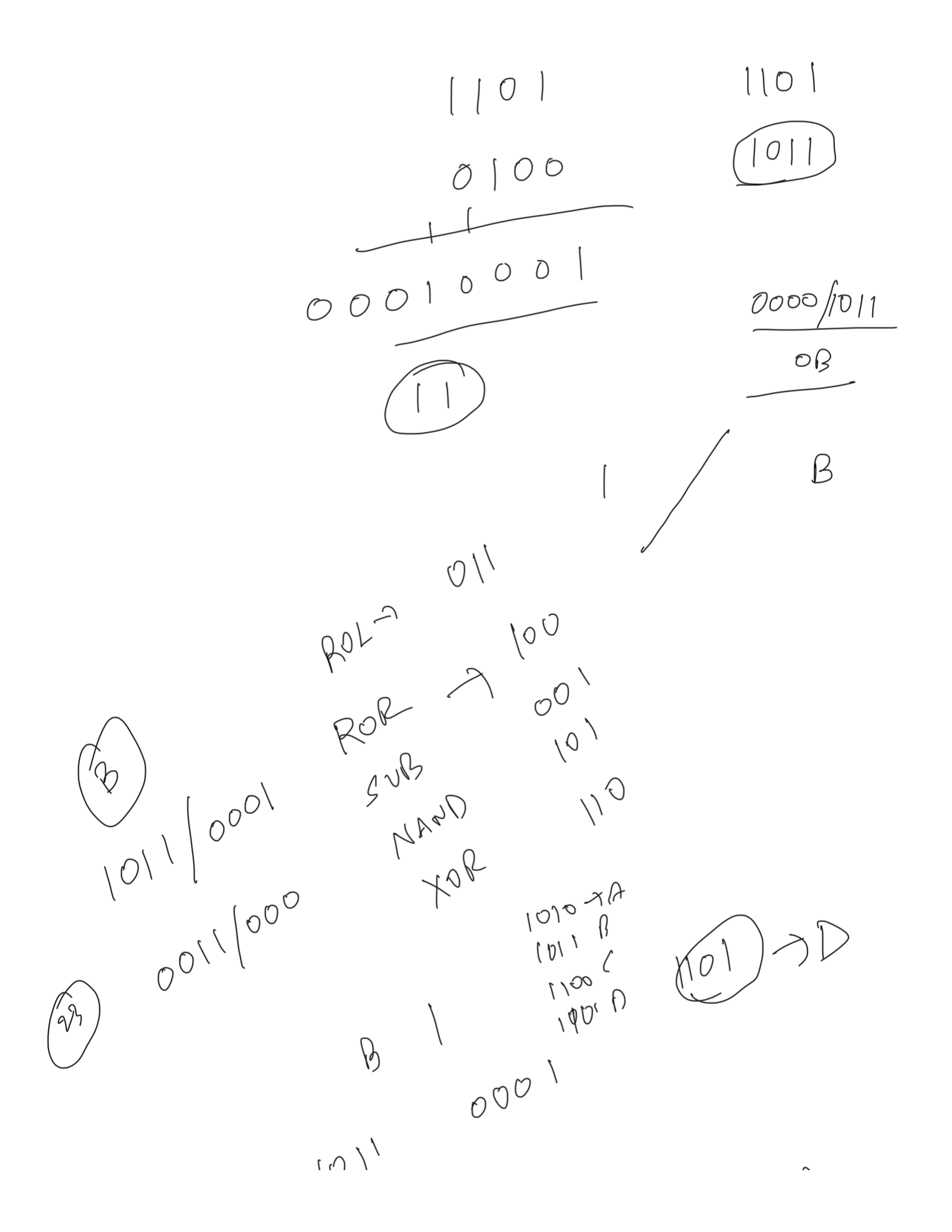
o/p → mega Cluster 2

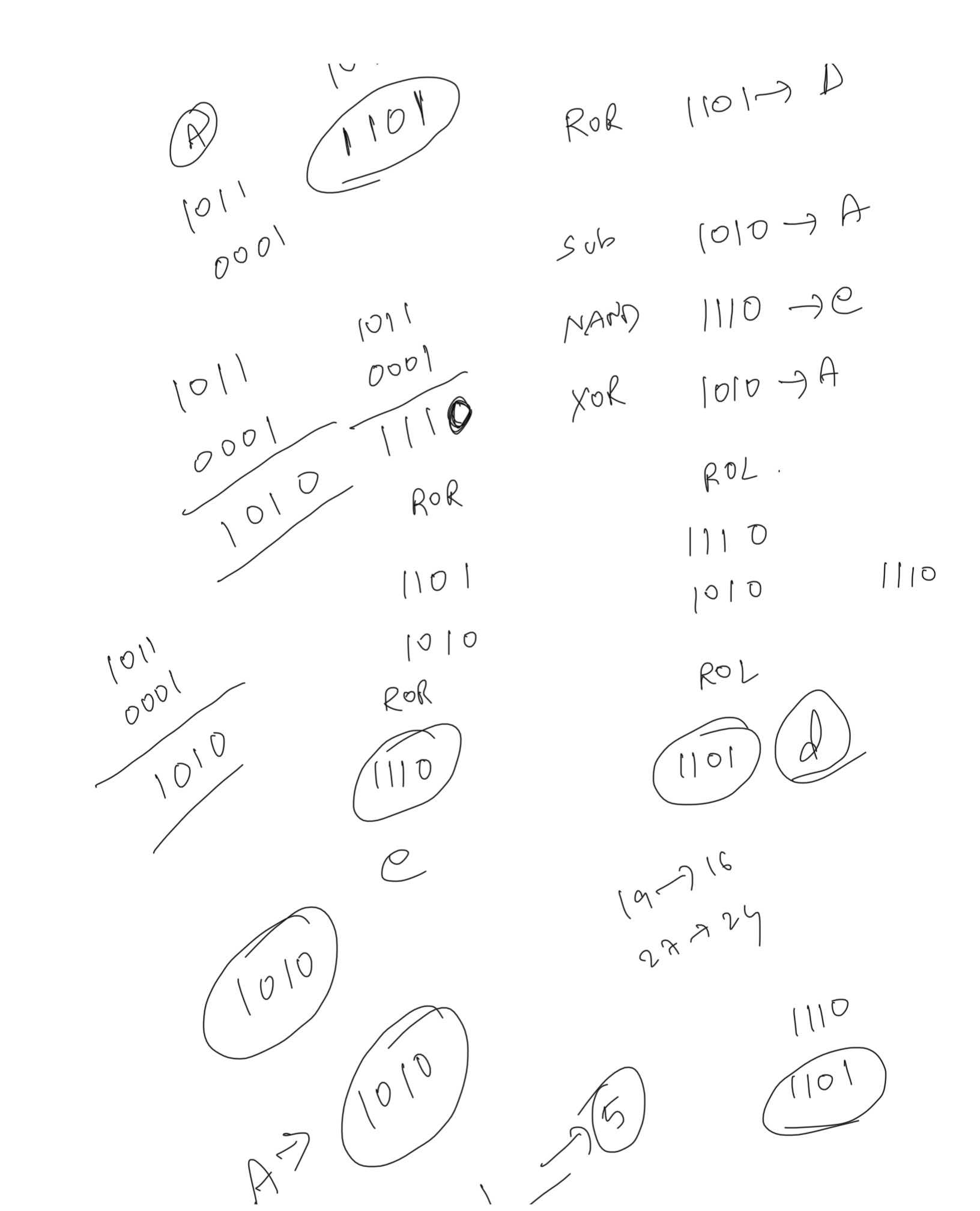
13d43d6e61

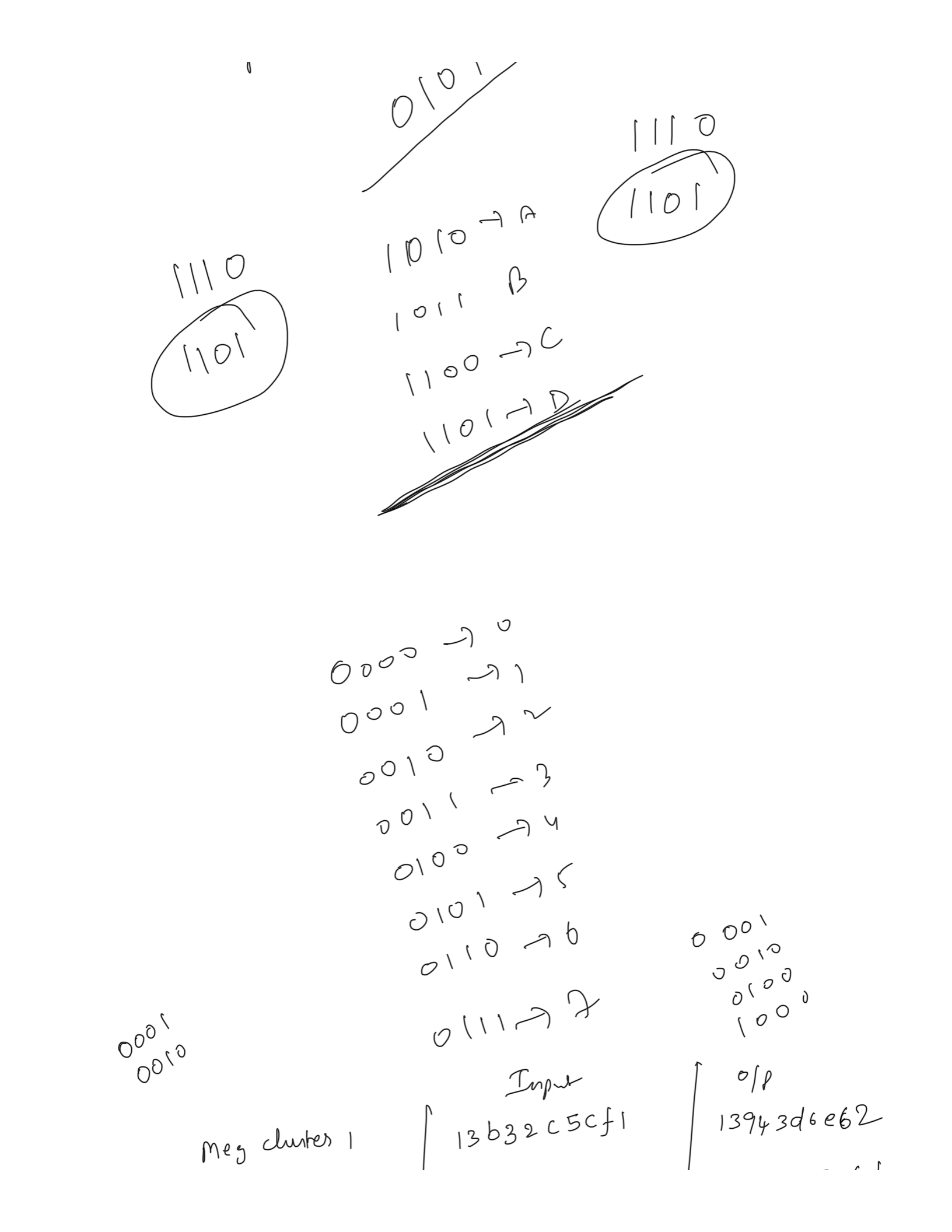
13d43c3ef1

1010 → A

1011 → B


1101
1011
0100
00010001
11
0000/1011
0B
B
1
011
ROL → 100
ROR → 001
SUB 101
NAND 110
XOR
B
1011/0001
0011/0000
23
B 1
0001
1011
1101 → D


A
1011
0001
1101
ROR 1101 → D
Sub 1010 → A
NAND 1110 → e
XOR 1010 → A
1011
0001
1010
1011
0001
1110
ROR
1101
1010
ROR
1110
e
ROL
1110
1010
1110
ROL
1101
d
1011
0001
1010
19 → 16
27 → 24
1010
A →
1010
5
1110
1101



0101

1110

1101

1010 → A

1011 B

1100 → C

1101 → D

1110

1101

0000 → 0

0001 → 1

0010 → 2

0011 → 3

0100 → 4

0101 → 5

0110 → 6

0111 → 7

0001

0010

0001

0010

0100

1000

Input

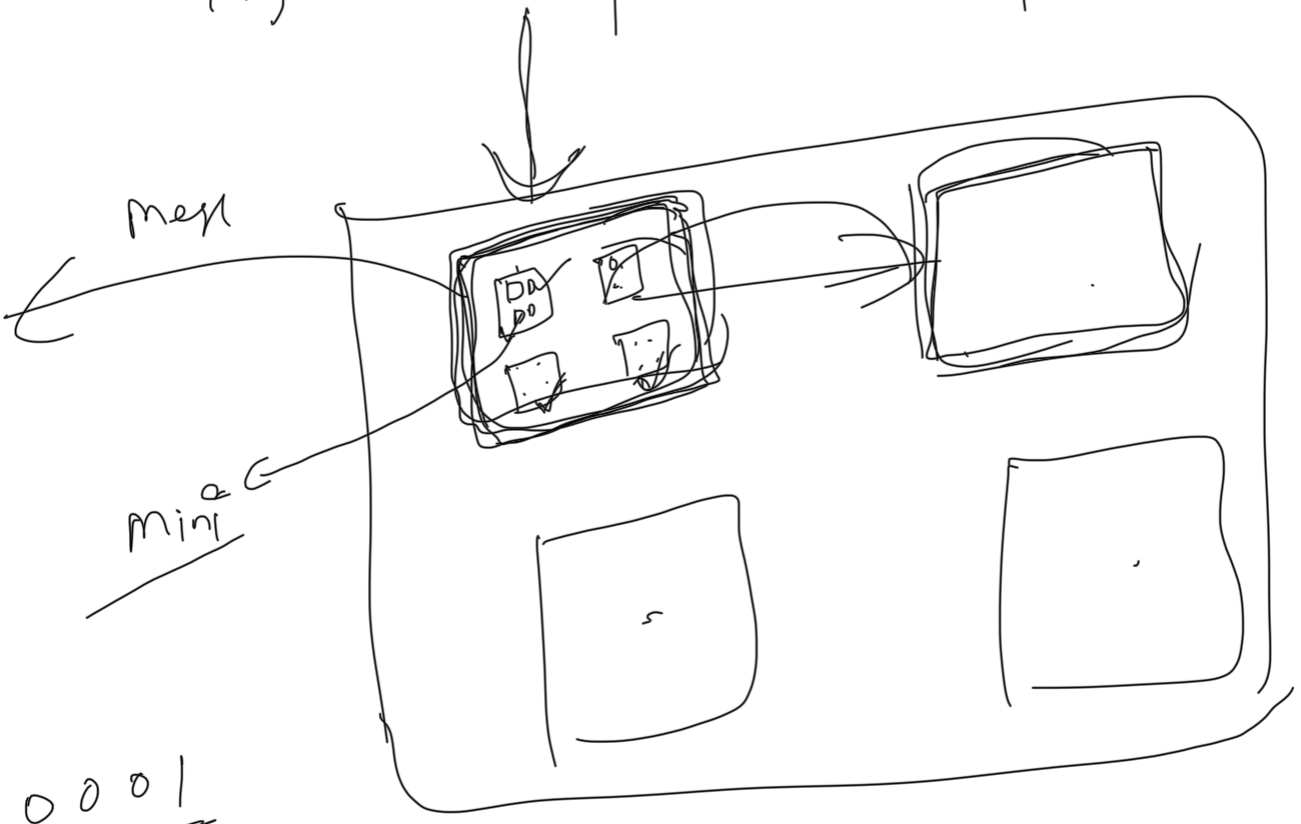
O/P

Meg clusters 1

13b32c5cf1

13943d6e62

Meg cluster 2	13943d6e62	13d43c5eb4
Meg cluster 3	13d43dc5eb4	13b130dcf8
Meg cluster 4	13b130dcf8	0507

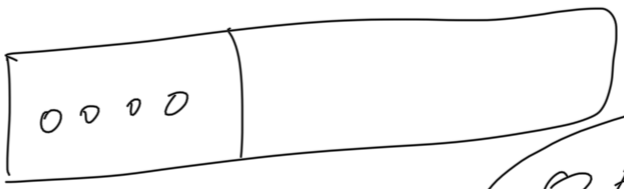


0001
0010
0100

32

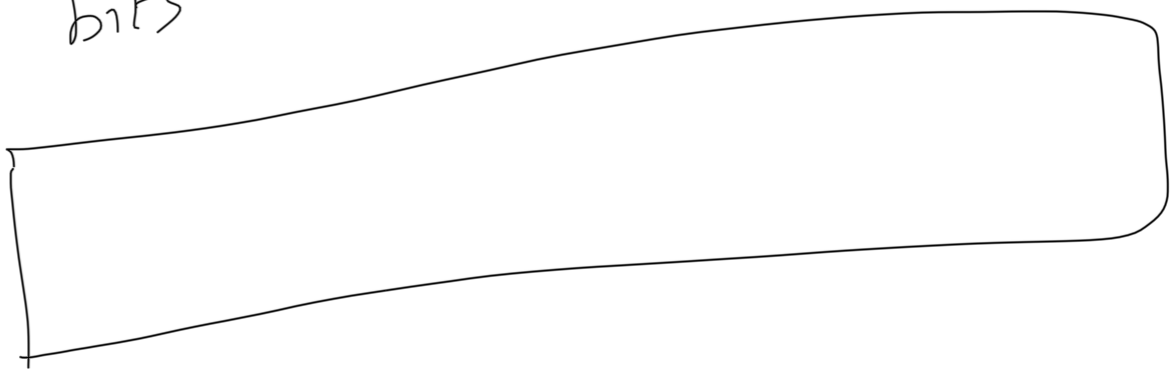
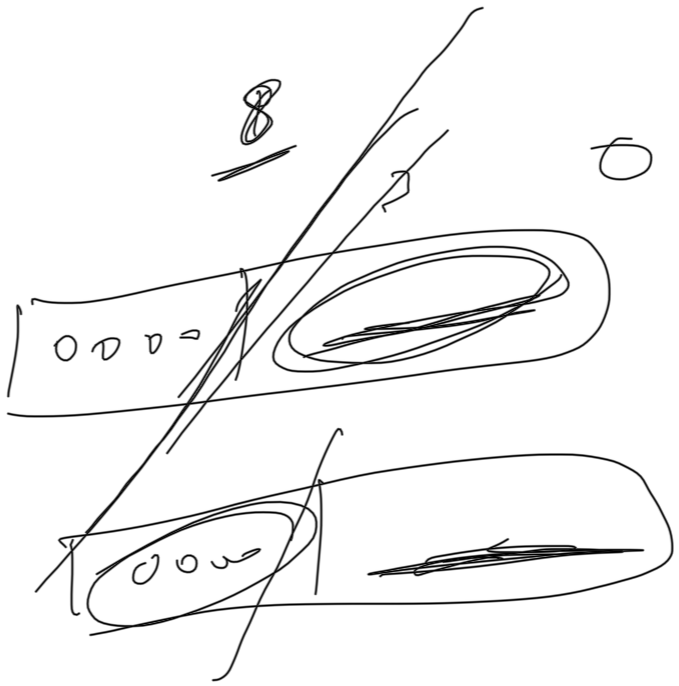
4x8 = 32

16



1010
0000 0101

ADD

NAND 8 8

39 bits